Claims

What is claimed is:

1. An apparatus for writing position data onto a first data storage disc comprising:
a spindle assembly configured to support first and second discs rotatably in a stack;
an actuator configured to support a servowriter head between the discs to write several servo marks onto a data surface of the first disc;
a support element configured to allow sliding contact with the actuator to unload the servowriter head from the data surface; and
means for retracting the actuator and the support element from between the first and second discs.

2. An apparatus according to claim 1 in which the discs have a nominal radius R and in which the support element is constructed and arranged to extend between the first and second discs by a distance greater than R/6.

3. An apparatus according to claim 1 in which the support element is a rotary cam structure, and in which the retracting means is an engagement surface configured to support the actuator while the cam structure rotates out from between the first and second discs.

4. An apparatus according to claim 3 in which the discs have a nominal radius R and in which the support element is constructed and arranged to extend between the first and second discs by a distance greater than R/6.

5. An apparatus according to claim 1 in which the actuator is rigidly but rotatably supported by a first rigid body, in which the spindle assembly is rigidly but rotatably supported by a second rigid body, and further comprising automated means for coupling the first and second rigid bodies temporarily during a servowriting operation.

6. An apparatus according to claim 5 in which the support element is a rotary cam structure, and in which the retracting means is an engagement surface configured to support the actuator while the cam structure rotates out from between the first and second discs.

7. An apparatus according to claim 5 in which the discs have a nominal radius R and in which the support element is constructed and arranged to extend between the first and second discs by a distance greater than R/6.

8. An apparatus according to claim 1 in which the stack has a substantially horizontal axis of rotation.

9. An apparatus according to claim 8 in which the support element has a substantially horizontal axis of rotation.

10. An apparatus according to claim 8 in which the actuator is rigidly but rotatably supported by a first rigid body, in which the spindle assembly is rigidly but rotatably supported by a second rigid body, and further comprising automated means for coupling the first and second rigid bodies temporarily during a servowriting operation.

11. An apparatus according to claim 8 in which the support element is a rotary cam structure, and in which the retracting means is an engagement surface configured to support the actuator while the cam structure rotates out from between the first and second discs.

12. An apparatus according to claim 8 in which the discs have a nominal radius R and in which the support element is constructed and arranged to extend between the first and second discs by a distance greater than R/6.

13. A method for writing position data comprising steps of:

(a) assembling first and second discs coaxially in a stack, the first disc having a first data surface facing the second disc;

(b) writing several servo marks onto the data surface with a servowriter head supported by an actuator;

(c) moving the actuator out from between the first and second discs by sliding the actuator onto an engagement surface of a support element that extends between the first and second discs;

(d) moving the support element out from between the first and second discs as the actuator slides on the engagement surface; and

(e) removing the first and second discs from the stack.

14. A method according to claim 13 in which the writing step (b) includes a step (b1) of sliding the actuator along a portion of the engagement surface that approaches the first disc at an approach angle of less than about 25 degrees relative to the disc surface until the actuator disengages from the support element.

15. A method according to claim 14 in which the servowriter head is constructed and arranged to fly at a median distance of less than one microinch from the data surface while writing the servo marks.

16. A method according to claim 13 in which the writing step (b) includes a step (b1) of sliding the actuator along a portion of the engagement surface that approaches the first disc at an approach angle of 4 to 10 degrees relative to the disc surface until the actuator disengages from the support element.

17. A method according to claim 13 in which the writing step (b) includes steps of:

(b1) loading the servowriter head adjacent the first data surface while the disc stack rotates at an initial speed; and

(b2) rotating the disc stack at least 5% slower than at the initial speed while the head writes the several servo marks onto the data surface.

18. A method according to claim 17 in which the writing step (b) further includes a step (b3) of sliding the actuator along a portion of the engagement surface that approaches the first disc at an approach angle of 4 to 10 degrees relative to the disc surface until the actuator disengages from the support element.

19. A method according to claim 13 in which the actuator movement step (c) is performed by rotating the actuator within a fixed angular range having two extreme positions.

20. A method according to claim 19 in which the support element movement step (d) is performed while holding the actuator at one of the extreme positions.

21. A method according to claim 19 in which the writing step (b) includes a step (b1) of sliding the actuator along a portion of the engagement surface that approaches the first disc at an approach angle of less than about 25 degrees relative to the disc surface until the actuator disengages from the support element.

22. A method according to claim 13 in which the support element movement step (d) is performed by rotating the support element about an axis of rotation.

23. A method according to claim 13 in which the support element movement step (d) is begun after the actuator is moved out from between the first and second discs.

24. A method according to claim 13 in which the actuator movement step (c) and the support element movement step (d) overlap.

25. A method according to claim 13 in which the discs have a nominal radius R, and in which the actuator and the support element continuously remain with a distance of R/6 of the discs throughout performing the steps (b) through (d).

26. A method according to claim 13 in which the removing step (e) begins by moving the discs axially.

27. A method according to claim 13 further comprising steps of:

(f) installing the first disc into a disc drive; and

(g) after the installing step (f), using the servo marks to position a transducer while the transducer writes additional position data onto the data surface.

28. A method according to claim 27 in which the writing step (b) includes a step (b1) of sliding the actuator along a portion of the engagement surface that approaches the first disc at an approach angle of less than about 25 degrees relative to the disc surface until the actuator disengages from the support element.

29. A method according to claim 27 in which the support element movement step (d) is begun after the actuator is moved out from between the first and second discs.

30. A method according to claim 27 in which the removing step (e) begins by moving the discs axially.

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